DOCUMENT RESUME

ED 295 579 IR 013 172

TITLE Telecommunications Policy Research Conference. Impacts of Telephone Deregulation Section. Papers.
INSTITUTION Telecommunications Policy Research Conference, Inc., Washington, DC.
PUB DATE Sep 87
NOTE 65p.; Papers presented at the Telecommunications Policy Research Conference (15th, Airlie, VA, September 27-30, 1987). For the conference program and additional papers, see IR 013 160-182.
PUB TYPE Legal/Legislative/Regulatory Materials (090) -- Reports - Evaluative/Feasibility (142) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Competition; Consumer Economics; Federal Courts; Purchasing; *Telecommunications; *Telephone Communications Industry; *Telephone Communications Systems; Utilities
IDENTIFIERS *American Telephone and Telegraph Company; Deregulation; *Divestiture; Pricing

ABSTRACT

Three papers consider various aspects of the AT&T (American Telephone and Telegraph Company) court-ordered divestiture. The first paper, "InterLATA Toll Alternatives for the Bell Regional Holding Companies" (Elizabeth A. La Blanc, Ann M. Wolf, and Richard M. Wolf), examines six options available to the RHCs (regional holding companies) for permitting them to enter into the interLATA or inter-state (long distance) provision of telephone service. The second paper, "Forces Affecting Telephone Bills, Post Divestiture" (Elizabeth La Blanc and Edgar Gentle) projects residential telephone rates for 1990 and considers the factors affecting them, including competition, deregulation, and pricing. It also compares post-divestiture 1990 telephone bills with what they would have been if divestiture had not taken place and bills had simply risen with inflation. The third paper, "Pre- and Post-Divestiture Purchasing Practiced by the Bell Operating Companies" (Gordon T. Ray), compares the RHC purchasing practices since the AT&T divestiture with those of AT&T before the divestiture, noting that the RHC's expansion into fields beyond the traditional telephone network has resulted in the purchase of products and systems representing a wide variety of technologies from a diverse group of manufacturers. It is concluded that RHC purchasing practices have adjusted, and will continue to adjust, to these changes. (Author/EW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED295579

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

TELECOMMUNICATIONS POLICY RESEARCH CONFERENCE

Impacts of Telephone Deregulation Section

Airlie, Virginia

September 27-30, 1987

IR013172

BEST COPY AVAILABLE

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Edward Zajec

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ABSTRACTS OF PAPERS TO BE PRESENTED
BY Robert E. La Blanc Associates, Inc.
at the Telecommunications Policy Research Conference

INTERLATA TOLL ALTERNATIVES FOR THE BELL REGIONAL HOLDING COMPANIES

Written by: Elizabeth A. La Blanc
Ann M. Wolf
Richard M. Wolf

The RHCs have given indications that they are very interested in getting into portions of the interLATA business and will probably work toward that goal if given the chance. Each of the following options available to the RHCs and Judge Greene will be examined in detail: 1) The RHCs could complete adjacent LATA calls, 2) The RHCs could provide interLATA, intra-state service within their regions, 3) The RHCs could be allowed into interLATA, inter-state within the their region, 4) The RHCs could provide interLATA, inter-state service outside their own territories, 5) The RHCs could carry international traffic or 6) All of the above.

ROBERT E. LA BLANC ASSOCIATES, INC.
323 HIGHLAND AVENUE
RIDGEWOOD, N.J. 07450

201/445-0195

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

INTERLATA TOLL ALTERNATIVES

FOR THE

BELL REGIONAL HOLDING COMPANIES

August 9, 1987

Written by: Elizabeth A. La Blanc
Ann M. Wolf
Richard M. Wolf

IR013172

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Edward Zajec

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

INTRODUCTION

In 1982 Judge Greene presided over the court that heard, from all interested parties, arguments on the divestiture of AT&T. It was a lengthy hearing that resulted in the establishment of seven regional Bell Operating Companies (BOCs) that began life under the restrictions of the Consent Decree approved by Judge Greene. Three areas were totally restricted to the Regional Holding Companies (RHCs) by this decree: manufacturing, information services, and interLATA service. In addition, each time they wished to enter businesses not addressed by the decree they had to petition the court for a waiver.

Now, three years after the divestiture took effect, Judge Greene is again holding hearings to listen to arguments about which, if any, of these three restrictions should be lifted from the RHCs. Under the provisions of the Consent Decree, every three years the Justice Department must provide to the court a study in which it reports the current status of telecommunications competition in the United States. That report, "The Geodesic Network, 1987 Report on Competition in the Telephone Industry," better known as the

"Huber Report," was submitted to Judge Greene by the Justice Department in January of this year. Included in the Huber Report is a review of the three restrictions to see if they are still necessary to protect the consumer and recommendations for lifting or modifying some of the RHC restrictions.

Initially the Justice Department suggested a total lifting of the interLATA toll prohibition for the RHCs outside of their regions. It later altered its recommendation to one in which all RHC interLATA toll requests, except out-of-region cellular and mobile services, would be considered under the Consent Decree's waiver process. The Justice Department recommended that all restrictions be lifted for cellular and mobile service.

To assure full competition the Justice Department feels that the RHCs need to be restricted from providing interLATA toll service within their territories until the states remove barriers to local exchange competition. It recommended that waiver requests for any type of interLATA toll service be examined in light of the presence or absence of legal barriers to intraLATA competition.

Judge Greene warned the Justice Department and others present at the hearings (June 29 - July 1, 1987) that RHC business restrictions are "not to be removed for trivial reasons or on the basis of cosmetic changes that have not significantly changed the competitive environment." He further said, "If real changes have occurred altering the incentive and ability of the regional companies to discriminate or manipulate, the restrictions will be eliminated. Otherwise, they will remain." According to the decree, relief from the prohibitions will be considered if the RHCs can demonstrate an inability to use their monopoly power to impede competition in the desired market.

The current hearings and subsequent order by Judge Greene as well as the continuing public debate will focus on the ramifications to the consumer of allowing the RHCs into the interLATA toll market. Will the RHCs add desired competition or will they provide a further bottleneck requiring FCC action? Judge Greene is on record as doubting whether the consumer will be adequately protected by the FCC without intervention from the court.

It can be argued that allowing the RHCs into the interLATA toll business would add viable competition in the long-distance market and would be in the best interest of the consumer. Prices for long distance service have fallen drastically since divestiture as MCI, Sprint, AT&T, etc. have competed for the consumer's communication budget. But MCI, Sprint and the other long distance providers have presented less viable competition to AT&T than was envisioned at the time of divestiture. The RHCs could provide viable competition with AT&T that could make long distance competition work for the foreseeable future.

InterLATA toll service would not be a new business for the BOCs since they provided all of AT&T's intra-state toll service before divestiture. Their experience and the potential profits make interLATA toll service attractive to the RHCs.

Depending upon their goals, different participation in the interLATA toll market could represent desirable areas of businesses for the RHCs. They could choose to provide adjacent LATA service only or compete on a total worldwide service basis or they could enter the interLATA business somewhere between these two limits. Or, they may decide not to enter into interLATA toll service in the near

future. At a later time they may choose to enter the InterLATA toll business by merger or acquisition with an Other Common Carrier (OCC) or Independent Telephone Company.

The RHCs will continue to consider the pros and cons of these options while keeping a close watch on the marketplace before making a choice. It would be unlikely for all seven companies to have the same goals and objectives for providing interLATA toll service. Thus a variety of petitions could be made to the court if the present restrictions are removed. But for now the RHCs must wait to see if Judge Greene decides to keep the door closed to their entering into the interLATA marketplace.

POSSIBLE SCENARIOS - THE RHCs AND INTERLATA SERVICE

The RHCs have given indications that they are very interested in getting into portions of the interLATA business and will probably work toward that goal if given the chance. Most probably, within the next seven years the RHCs will be allowed into this market in some way. They may, however, only choose to, or only be allowed to, get into long distance service in a limited manner. Some of the options available to the RHCs and Judge Greene include: 1) The RHCs could complete adjacent LATA calls, 2) The RHCs could provide interLATA, intra-state service within their regions, 3) The RHCs could be allowed into interLATA, inter-state within the their region, 4) The RHCs could provide interLATA, inter-state service outside their own territories, 5) The RHCs could carry international traffic or 6) All of the above.

Before we examine each of these scenarios in detail we must realize that the telephone market is divided into long-haul toll, short-haul toll, and local service. The distinction between long and short haul in the toll market is a very important one. Short haul toll is made up of the portion of the intraLATA market that is not local service and is not interLATA (long haul toll). According to the Huber

Report, short haul toll accounts for about one third of the traffic and about a quarter of the revenue of the toll market in the country. Except for limitations in crossing LATA boundaries, the RHCs continue to be in the multi-billion dollar short haul toll business.

This factor is at the heart of the argument about the size of AT&T's market share. If short-haul toll is counted for market share purposes, AT&T's share of the market is about 60%. If, however, only long-haul toll is counted, then AT&T's market share is about 80%.

1. ADJACENT LATA

The RHCs would certainly like to provide their business customers with "community of interest" as well as short haul toll and local service. Frequently the community of interest for a business customer lies outside the artificially determined LATA boundaries extending into the adjacent LATAs and beyond. Not only would the RHCs realize additional revenues from this business but they could provide greater customer satisfaction and prevent further erosion of their business customer base to bypass.

Serving an adjacent LATA would require a much smaller capital investment and be a less formidable technological task than setting up a large new network totally outside the RHC's region.

This option has more penetration than initially meets the eye. The RHCs would have to determine which adjacent LATAs would be the most valuable parts of a community of interest. Would the RHC want to operate strictly on an intra-state basis, or would it cross state boundaries for inter-state service, or would it have reason to go out of its own region into an adjacent RHC's LATA?

Regulatory oversight of adjacent LATA services would need clarification. Some adjacent LATAs would be purely intra-state and would require only state public utility commission (PUC) oversight, while others could be inter-state service falling solely under FCC jurisdiction. Carrying inter-regional traffic could create new questions of monopoly potential and regulatory authority. Unless these issues were resolved beforehand, a legal/regulatory quagmire might ensue.

2. INTERLATA INTRA-STATE SERVICE

This option is probably the one that is most comfortable for the RHCs. It would allow the BOCs' to offer the same type of toll service that they provided to consumers before divestiture. At that time AT&T (Long Lines) was the inter-state carrier for the Bell System, generally, leaving the provision of intra-state toll service to the BOCs.

State regulation of telecommunication service has always varied from state to state. Since divestiture the various state PUCs have taken differing stands on the regulation of intraLATA traffic. States such as California forbid long distance carriers other than Pacific Bell from carrying any intraLATA traffic. On the other hand, states like Flordia allow intraLATA competition.

It might be considered unfair to other long distance carriers to allow the intraLATA monopoly carrier to compete in the interLATA inter-state arena while not opening intraLATA toll to competition. The protected BOCs would have an advantage in providing long distance service within a state because they would have all of the interLATA traffic. The Justice Department has already stated it is

opposed to allowing the RHCs to provide interLATA service in their regions until the state removes barriers to local toll competition.

Several arguments have been raised against this scenario. The BOCs' "bottleneck" monopoly and their billing knowledge are prime arguments of opponents to the BOCs reentering intrastate toll between LATAs. But in most cases equal access and the rules that are made to implement it could become safeguards against the possible disadvantages. Customers could be asked to choose how they would like to be handled as their call passes out of their LATA for short distance toll, just as they currently choose their long distance carrier. While this would require equipment adaptations, the BOCs have the resources to be able to provide them, just as they adapted to the original interLATA requirements.

Competitors believe that because the BOCs have the "bottleneck" control of local facilities, they have the ability to route all calls over their own lines. Concern has also been voiced by competitors because they believe the BOCs have a distinct competitive advantage since they control access to local customers and have perfect information on all traffic originating in their areas. But

with equal access equipped offices customers can be asked to vote for their short-haul carrier of choice as well as their long-distance carrier and the BOC will be obliged to route the customer's traffic according to his wishes.

It is also felt that the BOCs have a competitive advantage in raising capital. However, the other side of that coin is that they can be very effective competitors with AT&T, MCI, Sprint, etc.

3. INTERLATA, INTER-STATE WITHIN RHC REGION.

Providing interLATA inter-state service is probably another option that appeals to the RHCs. It would allow them the largest market without having to operate outside their own region. Since divestiture the RHCs have generally tried to get into businesses inside their own territories. Inherent advantages exist for companies doing business in familiar territory, with known customers, and a built-in support system. While a new interLATA intra-region business would require additional staffing, the RHC infrastructure is there to help.

Expanding their service offering throughout their regions would also be advantageous to the RHCs in their relationships with large customers. Being able to more fully satisfy a customer's total telecommunications needs would be a big selling point for the RHCs. Many large customers, whose locations are spread throughout an RHC's region, have transmission needs that cannot be totally met by the BOCs today because of the interLATA restriction. In many cases an expansion of long distance service by an RHC to include the entire region would be beneficial for the large business customer.

Moving into providing inter-state long distance service will bring another level of regulation to the BOCs. Today they are all supervised by the state PUCs. The basic role played by the FCC in regulating services is that of regulating the access charges to long distance carriers. If the BOCs provide inter-state service they will be under much more regulation by the FCC and will be pervasively regulated by two commissions, the local PUC and the FCC.

The question of inter-RHC interconnection arises when seven large regional companies (the RHCs) covering the geographic United States begin to provide long distance service within the regions. If the RHCs were to make agreements among

themselves, another nationwide long distance system much like the old AT&T could enter the market. This system would look similar to the Canadian or European long distance network where large regional companies, i.e., the Canadian Provinces or European Country Telecommunications Systems, rather than one ubiquitous company, provide total long distance service.

An expansion of the RHCs' service to include their entire territories could seriously threaten the other long distance networks, including AT&T's. These other long distance companies, and in particular AT&T, could not ignore this threat and can be expected to go "all out" in challenging such an RHC scenario. If the RHCs do ask for and get this waiver, it is likely that there will be a renewed battle to win customers.

4. INTERLATA, INTER-STATE OUTSIDE RHC REGION

Another possibility exists that an RHC may be allowed to buy a large independent company like Contel, Alltel, United, etc., or that it may be in the public interest for one of them to buy a long distance carrier like U. S. Sprint. If the RHCs could operate only outside their territory, it would be logical for them to obtain

facilities through such a purchase. They would need to divest themselves of any long distance facilities existing inside their regions to meet an "out of region" criteria, but they would then have the facilities and equipment to begin offering service immediately.

Antitrust concerns could be addressed by the fact that the RHCs would not be able to pick up predatory economies of scale because in another region they would be only one of several competing carriers and wouldn't have control of the local exchange offices and loop facilities. This option eliminates the bottleneck problem because the company that controls the local loop and exchange would not carry long distance traffic in that region. But, at the same time, it allows any companies with the necessary financial resources to be in the long distance business.

A major disadvantage for a RHC providing long distance service outside of its region is that it would potentially be competing against five other RHCs plus AT&T and the OCCs on unfamiliar turf. It could also exacerbate the bypass problem. One RHC may acquire an independent in another RHC's territory to provide a few large companies with direct access to other long distance companies, potentially bypassing the local BOC.

There are gradations of allowing the RHCs into long distance outside their territories. For example, the RHCs could be allowed to carry long distance calls from their own territory to places outside the U. S. (to Canada, Europe or Japan). Or they could be allowed to carry data in partnership with a company like Western Union, Amsat or Equatorial but not permitted to carry voice. Or RHCs could be allowed to provide only Private Line service in order to prevent them from losing their valuable large customer base. Once again, this leads to the possibility of a RHC taking an investment in an independent company.

5. INTERNATIONAL

Yes, the RHCs are restricted from entering the interLATA market, but NYNEX is currently questioning the court about whether International service is considered interLATA service. If international service is not considered interLATA service and Judge Greene grants a waiver, NYNEX would be allowed to participate in a proposed fiber optic cable from New York to Great Britain. Technically, interLATA means between LATAs and would not include long distance service between one LATA and another country. However, the intent of the Consent Decree may include

restrictions on the RHC participation in any long distance service other than intraLATA including international service. Judge Greene could clarify this ambiguity when he rules on this issue in the fall.

Because international service is growing at a faster rate than the domestic long distance market, any company interested in entering the long distance market will certainly consider serving foreign countries as well. It is logical that NYNEX and Pacific Telesis as well as the other RHCs on the East and West coasts of the United States would be more interested in this service than would their counterparts in the middle of the country. The community of interest for the coastal RHCs' business customers likely extends to Europe from the East coast and to the Far East from the West coast. Then too, there have been very few foreign partners in the international marketplace besides AT&T now that Argo has declared bankruptcy. MCI and Sprint have been slow to establish foreign partnerships; thus AT&T is the "de facto" partner of choice for most foreign telecommunication authorities.

Historically the RHCs have had very little international business experience. Before the divestiture AT&T (Long Lines) handled all international services. Since

divestiture some of the RHCs have tried limited business ventures into foreign countries, but so far they have experienced start-up problems and fewer than expected financial rewards.

A facilities based international long distance service would require high capital investment. The RHCs could mitigate these expenses through joint ventures with other foreign telecommunications companies or United States companies.

OTHER CONSIDERATIONS

Over the years arguments have been put forth asserting that AT&T's long-haul economies of scale cannot be equalled by connecting the short-haul networks of the BOCs. In the past this may have been true in part because of the high portion of investment necessary for local switching and short-haul transmission facilities with their higher inherent cost. Thus overlaying the requirement of long distance service on the local equipment was not logical from a cost or control perspective. However, today's digital technology brings the relative transmission and switching costs of a nationwide carrier composed of interconnected integrated regional local and long distance

networks closer to those of a stand-alone nationwide long distance system. In fact we may be seeing this happening with consortiums like the National Telecommunications Network (NTN) which interconnects short haul toll and long distance toll between the NTN member companies.

While the RHCs may never be the lowest cost provider of toll services, they could indeed form a viable competitor to AT&T. They have clout and could afford to compete by bringing margins down and introducing new services. Eventually this could benefit the consumer.

If the RHCs were allowed into the long haul toll business, AT&T would probably be further deregulated and market forces would be allowed to work more freely.

As a quid pro quo for being allowed into this business the RHCs might be willing to take up the reins of being the carrier of last resort.

While some of these scenarios certainly could put a squeeze on the OCCs, it also might force them into better solutions of their own problems. For example we might see more mergers or groupings like NTN providing better service to the user and greater viability to the companies and shareholders.

Another effect of allowing the RHCs into interLATA toll might be the slowing of RHC diversification efforts in non-telecommunication areas and the directing of the RHCs toward more telecom-related businesses.

If the quest for interLATA competition leads to the inclusion of the RHCs in the currently restricted line of business, a number of questions will need to be answered:

Which interLATA markets should the RHCs be allowed into?

Who should regulate the RHCs' interLATA business?

What forms of equal access (i.e., balloting, etc.) should be required?

Will the consumer benefit if the RHCs enter the interLATA market?

Right now, all that is known for certain is that if the RHCs are allowed into interLATA service there will be changes in the marketplace that can be anticipated and others that may surprise us all. New services and lower prices could reward the consumer for the increased competition but antitrust and regulatory confusion and a changing marketplace make entry predictions highly speculative.

The question remains: will a need for viable toll competition call for the entrance of the RHCs into the interLATA business and, if so, under which scenario?

ROBERT E. LA BLANC ASSOCIATES, INC.

FORCES EFFECTING TELEPHONE BILLS POST-DIVESTITURE

Written by: Elizabeth La Blanc
Edgar Gentle

This paper presents a discussion of projected 1990 residential telephone bills and the factors effecting them such as, competition, deregulation and pricing. It compares post-divestiture 1990 telephone bills with what they would have been if divestiture had not taken place and bills simply rose with inflation.

ROBERT E. LA BLANC ASSOCIATES, INC.
323 HIGHLAND AVENUE
RIDGEWOOD, N.J. 07450

201/445-0195

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

FORCES AFFECTING TELEPHONE BILLS

POST-DIVESTITURE

August 10, 1987

Written by: Elizabeth La Blanc

Edgar Gentle

IR013172

ROBERT E. LA BLANC ASSOCIATES, INC.

FORCES AFFECTING TELEPHONE BILLS POST-DIVESTITURE

INTRODUCTION

Following the breakup of the Bell System and the restructuring of the telecommunications industry, great concern was expressed for the fate of the residential customer's telephone bill.

Reflecting this concern, in early 1985, Mountain Bell asked Robert E. La Blanc Associates, Inc., consultants to the telecommunications industry, to do an economic study that would project what the average total telephone bill for residential customers in each state served by the company would be by 1990.

With Mountain Bell's permission we are summarizing the results of the study. The methodology will be described very broadly and state data has been averaged out of respect for the confidential relationship between us and our client. What is important is that we were able to show, through economic analysis, that the divestiture and deregulation will not significantly change the residential customer's total telephone bill.

GENERAL ANALYSIS

In order to arrive at the projections for 1990 several analyses were made. First, we looked at the average telephone bill from each state during the year 1982 from a statistically valid sample of about 5,000 of Mountain Bell's customers. We then divided each bill into each its component charges. Table I shows how they were broken down.

TABLE I
PRE-DIVESTITURE RESIDENTIAL CUSTOMER BILLS
MONTHLY AVERAGE 1982
(for seven states)

	Local Service Charge and Usage*	Intra-state Toll	Inter-state Toll	Total**
Hi-state	$14.91	$10.55	$16.73	$36.28
Lo-state	10.90	4.35	8.64	28.64
Average	12.91	6.45	12.84	32.20
Average as a percent of total	40%	20%	40%	100%

* Includes inside wiring and CPE replacement and maintenance

** Excludes state and local taxes

Note: Hi- and lo-state totals will not add.

Then we looked at the broad changes that are likely to occur by 1990 throughout the United States, such as technological advances, increases in productivity, and inflation (which was based on CPI projections for the year 1990.) Then we examined the changes that divestiture brought to the industry itself and the effects of such factors on competition.

Within this framework, La Blanc Associates examined the demographics and economics in the areas served by Mountain Bell and how the company would probably respond to the needs of its customers. From this perspective, La Blanc Associates determined what form we would expect the telecommunications business to take in those areas in 1990.

We assumed that competition would be the key factor in determining the strategies of the participants in the telecommunications industry. It would force telecommunications companies to offer a variety of products and services at competitive prices. In order to compete, Mountain Bell would have to offer new services and charge rates for these services that more closely reflected what it cost the company to provide them. Mountain Bell, in turn, would give customers choices in services, such as flat rate vs. message rate, etc.

We assumed that, by 1990, basic telephone service would still be regulated in some form but that all other services such as enhanced and competitive services would be deregulated.

The results of our analysis were then compared to what an average telephone bill would look like in 1990 if the charges rose at the rate of inflation and divestiture had not taken place. Table II shows this scenario.

TABLE II
1982 RESIDENTIAL CUSTOMER BILLS
INFLATED TO 1990
WITHOUT DIVESTITURE
(for seven states)

Hi-state	$52.61
Lo-state	41.53
Average	46.70

SPECIFIC ASSUMPTIONS

In order to arrive at its projections for telephone rates in the year 1990, Robert E. La Blanc Associates, Inc. developed assumptions specific to the telecommunications environment in which Mountain Bell operates.

1. Between the time of the study and 1990 a variety of competitors would enter and thrive in the area served by Mountain Bell.

2. The free marketplace would prevail and the major cross subsidies inherent within the pre-divestiture telephone marketplace would largely be eliminated. The only exceptions would be the subsidies received from the following three areas for local exchange rates.

    a. IntraLATA (Intra-state) Toll would be very competitive by 1990 but Mountain Bell would maintain its dominant market position.

    b. Directory Advertising would still be making a modest contribution to basic service.

c. The market for Supplemental Services, such as packet switching, would grow and customers would be willing to pay a premium for them.

3. By 1990 the telephone business, in general, would be deregulated in each state either through legislative or constitutional change.

4. Robert E. La Blanc Associates, Inc. was concerned that if deregulation was not effected in the individual states, continued cross-subsidies would result in the loss of the large users who provide the revenue base that covers fixed costs for the residential marketplace. These cross-subsidies which are economically inefficient in a competitive marketplace would result in the proliferation of the use of "bypass" by large business customers due to the rapid advance of technology. This loss of revenue from large businesses, we believe, would result in a higher residential rate than would prevail in our assumed non-regulated marketplace.

5. The competition would force Mountain Bell to make the following changes:

a. Mountain Bell would reprice competitive services in order to survive in the competitive market place.

b. Services that are currently offered but can't be priced to make a profit would be abandoned by Mountain Bell and left to be implemented by other companies.

c. Prices would move closer to cost wherever cost plus a reasonable profit would allow a competitive rate.

d. In cases where costs cannot be recovered because of competitive pressure, then Mountain Bell may be forced to price at marginal rates. In no case, however, would Mountain Bell provide any service that would be below marginal costs. Instead the company would try to use new technology to reduce costs.

6. With the installation of equipment required to provide equal access, Mountain Bell would offer measured service. Robert E. La Blanc Associates, Inc. expects that by 1990 about half of the residential customers

would be subscribing to some form of measured service and the other half would continue subscribing to a flat rate type of service.

7. Mountain Bell would be actively pursuing efficiency improvements similar to those being implemented throughout the industry. Robert E. La Blanc Associates, Inc. anticipated that by 1990 substantial productivity improvements would be reflected in the prices of various services.

8. 1982 was used as the base year for this study. It, rather than 1983, was chosen because it was the last full year for which reliable pre-divestiture data was available. None of the changes that evolved from the divestiture had yet had any effect on these figures. 1983 has to be viewed as a transitional year with many structural irregularities. For example, AT&T had taken over all new sales of CPE while the regional companies only sold CPE from their inventories.

9. Robert E. La Blanc Associates, Inc. anticipated a moderate inflation rate between the time of the study and 1990 and used the inflation rates projected by US West as a basis for moderate price increases.

10. By 1990 all residential subscribers would own their own CPE. Replacement would be done with standard type telephones readily available from a variety of retail establishments.

11. By 1990 the investment for inside wiring would have been amortized or written off. Inside wiring maintenance would be handled by Mountain Bell or an electrician on a paid service call basis.

CONCLUSION

Based on these assumptions and using the most conservative approach, we reconstructed a hypothetical residential subscriber telephone bill which was based on an average of the seven states that Mountain Bell serves for the year 1990. Our estimates represent a "worst case" scenario for the customer. Table III shows the result of our analysis.

TABLE III
PROJECTED AVERAGE RESIDENTIAL BILL
MONTHLY AVERAGE 1990 - FOR SEVEN STATES

	AVERAGE LOCAL SERVICE AND USAGE CHARGE	INTRA-STATE TOLL	INTER-STATE TOLL	OTHER CHARGES (including inside wiring, access charges) and CPE	TOTAL*
Hi-state	$46.98	$7.91	$8.37	$5.00	$66.61
Lo-state	21.10	3.26	4.32	5.00	36.67
Average	29.96	5.18	6.42	5.00	46.56
Average as a percent of total	64%	11%	14%	11%	100.0%

* Excludes state and local taxes
Note: Hi- and lo-state totals will not add.
Source: Robert E. La Blanc Associates, Inc. estimates

What the La Blanc Associates economic analysis showed was that the amount of the total residential telephone bill in all of the states served by the company was likely to be

very close to what it would have been if the divestiture had not taken place and total phone bills simply rose with inflation. But, the composition of the bill would change dramatically, even though the total amount paid by the customer would not change much. The bulk of the monthly charge (approximately 65% or between $20 and $30 in most areas) would be for local usage and services. Customers would own their own equipment, but pay a small monthly charge for maintenance and inside wiring and equipment (approximately $1 each) and approximately $3 for access to long-distance service. Local rates would increase, maybe even double, but toll rates, especially interstate would drop dramatically. On average, a customers' bill would be close to what it would have been if no change had occurred and prices just rose with inflation. It must be noted that we are dealing with an <u>average</u> and that some residential rates will always be higher, while others may be lower than the average. For instance, the customer who makes few toll calls in a month will have an increased monthly bill vs. the "inflation bill" without deregulation. Table IV shows the comparison of the three scenarios.

TABLE IV

COMPARISON OF RESIDENTIAL CUSTOMER BILLS
PRE-DIVESTITURE, 1990 WITH INFLATION, 1990 WITH DIVESTITURE

	Pre-Divestiture	1990 with inflation	1990 with divestiture
Hi-state	$36.28	52.61	$66.61
Lo-state	28.64	41.53	36.67
Average	32.20	46.70	46.56

We were concerned with the fact that if deregulation did not occur continued cross subsidies might result in the loss of the large users who provide support to the residential marketplace. Under continued regulation, residential rates would increase more rapidly than under unregulated competition.

Pre and Post Divestiture Purchasing Practiced by the Bell Operating Companies

Presentation by
Dr. Gordon T. Ray
Senior Vice President, Technology
NEC America, Inc.
Melville, NY

to the

Fifteenth Annual Telecommunications Research Conference

September 27th through 30th
1987

IR013172

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Gordon T. Ray

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Summary

Purchasing practices of the former Bell Operating Companies have changed dramatically since their divestiture from AT&T. Originally developed to serve the needs of the world's largest corporation and to insure the integrity of a highly dispersed telecommunications network, these methods served the Bell System and its customers well. Fundamental modifications in the structure of the telecommunications industry and associated technologies, however, rather than the simple fact of divestiture, are forcing revisions.

These changes will continue at an accelerating pace.

The Regional Holding Companies have entered into businesses beyond the traditional telephone network and have extended their operations internationally. These activities have introduced them to many new suppliers. In addition, the continued movement towards worldwide standardization should eliminate major obstacles to participation by many vendors. Also, new network architectures will call for deployment of technologies at a rapid pace, unimagined when Bell System purchasing policies were in vogue.

The inevitable result will be the purchase of products and systems representing a wide variety of technologies from a diverse group of manufacturers. Responsive purchasing policies and practices will give the Bell Companies a competitive approach in the many faceted businesses or services being contemplated. At the same time, market forces may well serve to reduce the secure status of some established suppliers and require all vendors to provide constant technological advances with higher levels of after-sale service and support.

A. The Beginnings

The Bell Company offered service initially in Boston, Massachusetts in 1877. For the next two years the electrical shop of Charles Williams, Jr. provided, almost exclusively, telephones and apparatus for the struggling corporation. The National Bell Company was created in 1879 to care for the mounting financial and production problems being encountered, due to the telephone's popularity. Soon thereafter, manufacturing licenses were issued to four additional firms located in Chicago, Indianapolis, Cincinnati and Baltimore for patented telephone apparatus.[1]

Theodore Vail was to testify in a legal proceeding, subsequently, that the manufacturers had a tendency to "run off in different lines of development." Under Vail's leadership, the American Bell Telephone Company was created in 1882 and this organization completed the acquisition of the Western Electric Company. Soon thereafter the Boston and Indianapolis facilities were turned into consolidated operations and the license agreements with other manufacturers were terminated. The acquisition of Western Electric initiated the eventual integration of the then Bell Telephone System. Their strategic alliance created profound and lasting consequences for the telecommunications industry worldwide.

B. The Next Century

It has been reported that Congress, as early as 1911, believed that the American telephone network should be organized, main-

[1]For an excellent review of the beginning of the Bell System, see The Anatomy of a Business Strategy, George David Smith, Johns Hopkins Press/AT&T series, 1985.

tained and managed as a unified entity and regulated as a public utility. The Communications Act of 1934 reaffirmed, in the eyes of some, that an integrated network managed by the Bell System in cooperation with the Independent Telephone Companies was indeed the means to provide universal service to American subscribers. This concept, not unwelcome to AT&T, was nurtured by state and federal regulatory entities.[2]

In addition, the courts supported AT&T in its vertical structure and public utility orientation. The Supreme Court in 1953 outlined "...the Federal Communications Act of 1934 contradicts the notion that national policy unqualifiedly favors competition in communications...." Again, the court stated in 1974 "...regulation by government agencies is based on the belief that competition cannot be trusted to do the job of regulation in that particular industry which competition does in other sections of the economy."

Theodore Vail had created one of the most successful business philosophies in the world; a "natural monopoly" where a single company, with governmental regulation, could serve the public better than competition. This "horn of plenty" concept was not lost to the succeeding leaders of AT&T.

Western Electric became recognized on a worldwide basis as the manufacturing and supply unit of the Bell System. Its development of new products, in conjunction with Bell Laboratories, has been cornucopian. Western Electric maintained a "Standard Supply Contract" with the Bell Operating Companies which called for WECo to manufacture or purchase required materials.

[2] The Case for Congressional Action to Safeguard the Telephone Network as a Universal and Optimized System, Eugene V. Rostow, Memorandum for the American Telephone and Telegraph Company.

Although the Operating Companies were not obligated to secure everything from their "vital partner," there was an ease in doing business this way sometimes not found with other vendors. In addition, Bell System employees were motivated by a "spirit of service," a concept that was nurtured by AT&T and its subsidiaries. Stories that promoted this "family spirit" frequently carried mention of Western's prominent role in helping the public during times of distress or disaster such as hurricanes, fires, floods, etc. The esprit de corps created by working together carried over into purchasing decisions, i.e. the well being of the entire family was enhanced when the integrated manufacturer was utilized.

These purchasing practices of AT&T, the world's largest public utility company, played a prominent role in the most recent government antitrust action which led to dismemberment of the Company in 1984. As issues of law, the government found violations in AT&T's preference for products manufactured by its Western Electric component to the economic detriment of numerous companies that had attempted to market products to the Bell Operating Companies. The Justice Department saw violations in the sheer size of an organization that controlled over 80% of one of the nation's largest industries. And the government cited restraint of trade in countless AT&T standards that made it impossible for network users to add equipment of their own choosing to the public network.[3]

Antitrust proceedings inevitably involve combinations of legal and other issues. The legal points are properly left to the courts and their representatives. But from the viewpoint of economics, there can be little doubt that AT&T, serving more than 80% of the nation's telephones and having Western Electric

[3]Plaintiff's Statement of Contentions and Proof, Civil Action 74-1698, U.S. District Court for the District of Columbia.

manufacture about 80% of the communications equipment purchased by the Bell Operating Companies, was the dominant economic power in the American telecommunications industry. Legal actions initiated by AT&T demonstrated the Company's determination to dictate requirements for the United States public telecommunications network. There may or may not have been anticompetitive reasons for the Company's policy of amassing such dominant size and for the individual practices it developed to unify the products and technologies used by its Operating Companies. There were economic and service reasons that created this behavior. These stimuli were grounded in at least two fundamentals of telecommunications in existence almost since its inception; the public utility nature of the telephone industry and the concept of end-to-end responsibility which was established, nurtured and blossomed during a century of operation and growth.

1. The Public Utility Nature.

AT&T was, after the early 1900's, never considered by most of its external constituents to be a competitive company, but rather was viewed as being protected from competition as a public utility. It was entitled to earn a fair return on investments made in the public interest, and was charged with providing low cost, universal and reliable telephone service to every household in the United States.[4]

How well it succeeded in fulfilling that mission is attested by the simple statistics of telephone service in the United States. AT&T provided more access lines than any governmental, public or private organization in the world. Over 95% of the American households participated in a network that could almost instantly connect any point to any other point, with gateways

[4] A Telephone Rate Case, Edward D. Smith, Public Utilities Reports, Inc., 1941.

to other telephone utilities in almost every country in the world. Over 80% of those access lines were provided dial tone by the Bell Operating Companies. Service delivered by independent telephone companies were almost immediately led to AT&T owned and operated facilities. So universal and so efficient was the service, that telecommunications in the United States was the envy of people from other nations, and indeed was enthusiastically hailed as a model by offshore providers of telephone service.

The administration and operations of AT&T as a public utility established a priority of requirements in technology, service and in the purchasing practices that supported those drives:

a) Standardization: No utility attempting to deliver a universal service can long exist without standards. An electric utility, for example, must comply with uniform voltages, frequencies and current types if it is to connect with other electric utilities, thus necessitating a universally accepted set of standards to which all public power companies must adhere. Further, the utility must enforce that standard even into the privacy of the customer's home or else risk damage to the network that would inconvenience many others.

b) Common practices: Installation and maintenance practices must be meticulously followed since the work force charged with installing and maintaining will be different, both geographically and over time. Workers should not disassemble a system unless they know precisely how it was originally assembled or have been given adequate reassembly instructions. Rigid adherence to common practices assures that such knowledge is shared across the utility.

c) Quality control: The Bell System was considered by many to be the leader in communications quality with AT&T, Western Electric, Bell Telephone Laboratories and the Bell Operating

Companies all contributing. The importance of high standards was a Bell System hallmark following its inception more than 100 years ago. Bell System managers historically felt that high quality in design, manufacturing, installation and operation yielded an extremely reliable, low cost communications network.[5]

Users of telecommunication services have expressed strong sentiments regarding quality. They want the telecommunications network to operate, at their will, as wanted, when needed, all of the time. This is reliability of the highest order, and is dependent on an adherence to rigorous quality standards in hardware, software and methods as well as human factors.

d) Investment economics: Cost, in AT&T's environment, rarely meant only purchase price and installation expenditures. Elaborate formulae were used--present worth analysis, for example--to determine the full life cycle cost of the equipment. This process was very important because the resultant investment costs were used in public service and federal commissions' procedures for evaluating the amount of the investment that could be included in a rate base. Initial price competitiveness between suppliers was less important to Bell System Operating Company acquirers than it was to the purchasing departments of competitive businesses that were less concerned about long lived operational needs.

Because it was the world's largest utility, it should not be surprising that Bell System purchasing practices were influenced by these considerations. In addition, they stressed compliance with national, not international, standards and a reluctance to implement new technology until a Bell System

[5]Quality--A Commitment by NYNEX, G. T. Ray, IEEE Journal On Selected Areas in Communications, October, 1986.

standard was developed. They tended to favor a minimum number of vendors since extensive and expensive practices had to be developed to support the products of each supplier. They carefully and painstakingly introduced innovation after the quality and reliability of the embryonic product were firmly established, i.e. transistors. And they were often unimpressed by marginal initial price advantages since the momentary gain of a somewhat lower price was generally lost in considerations of life-cycle cost and in the anticipated return allowed through the public utility rate making procedures.

2. End-to-end connection responsibility concepts.

Purchasing practices within the Bell System apparently were also influenced by the technology which was fundamental to the service being offered. The telephone evolved out of the wire oriented telegraph. In fact, it was invented accidentally in an attempt to multiplex telegraph signals over a single wire. Alexander Graham Bell's famous summons of Watson was heard over the reeds that Bell was using to provide each multiplexed telegraph signal with its own differentiating frequency.[6]

The telephone companies which eventually became part of the Bell System, therefore, built their services on the basis of copper wire distribution facilities from each subscriber location to designated switching systems, and copper wire connections between those switching centers. That network pattern became the cornerstone of the telephone industry.[7]

[6] American Science and Invention, Mitchell Wilson, Simon and Schuster, 1954, pg. 280.

[7] Telecommunications: A Time For Innovation, A. A. Collins and R. D. Pedersen, Merle Collins Foundation, 1973.

Because of its immense scope and the enormous capital investment in cable, right-of-way and switching centers that such technology demanded, the plant design was resistant to significant short term change.

Technological modifications within the Bell System were therefore directed primarily toward enhancing the performance of the historical network pattern. The Company prudently advanced digital technologies for multiplexing wire-oriented transmission signals because these concepts increased the capacity of the existing structure. And it moved to automated switching centers because the new technology vastly reduced the operating costs of the existing central offices. It was not as quick to change to digital technology in end offices, microwave and customer premises equipment where the cost and service benefits in the network were less apparent.

It was, for a period of time for some, fashionable to criticize the telephone industry because it was still using electric motor driven selectors and electro-mechanical relays to switch telephone calls in an age of digital electronics. During that period, computers were "down" much more frequently than relays, which violated the industry's need for absolute reliability. Also, critics were hard pressed to explain how the connection of two copper wires could be performed more effectively electronically than mechanically. Nor could these pundits articulate the new services that would supply needed revenues to accomplish the required additional investments.

Bell Operating Company purchasing practices were derived from two previously mentioned fundamental considerations of the telephone industry: 1) being a regulated public utility with 2) end-to-end responsibility. As a result, purchasing was characterized by:

--Reliance on a minimum number of communication equipment vendors.

--Preference for well-established, trusted suppliers.

--Use of technologies compatible with the existing network.

--Resistance to products and technologies for which Bell System standards did not exist.

--Understandable reluctance to secure products and technologies which impacted established utilization and maintenance practices.

--Need for significant amounts of documentation and support.

Inasmuch as these policies limited potential competition for non-affiliated suppliers' sales to AT&T, they may have been deemed to be in violation of antitrust laws. And inasmuch as the Bell System carefully controlled the introduction of newer technologies, it may have been judged restrictive to the nation's total communications capabilities. But these practices were perfectly appropriate to a regulated public utility engaged in the excellent service operations that were the communications heart of America, and which became the ideal to which other national telephone service providers aspired. Indeed, it could be argued that more aggressive and varied purchasing policies would have been irresponsible.

C. Trail of Circumstances

World War II hit the Bell System in many different ways. Beginning in 1942 and lasting until 1945, Bell Telephone

Laboratories and Western Electric devoted themselves almost entirely to developing and manufacturing equipment for military endeavors.[8]

The Bell Operating Companies were faced with mounting service demands to be met with fewer employees and almost no equipment from their integrated manufacturer. Thus began, in earnest, the look for outside suppliers with adequate equipment to fill what evolved into over two million unfilled requests for service.

After the cessation of hostilities, there were many companies that made excellent contributions to the nation's war efforts that looked to the telecommunications industry as a leading market opportunity. Many servicemen accustomed to non-Western Electric military products, returned to the Operating Companies with favorable feelings towards other manufacturers. These associations, and Western Electric's inability to provide sufficient equipment in time, led to the realization that there were viable options to Western Electric equipment for telecommunications.

Bell Telephone Laboratories was founded in 1925 and had deservedly become recognized as a prestigious scientific institution. With about 20,000 patents and seven Nobel Prizes in physics, there were some who considered this organization a national asset.[9]

World War II, however, spawned research efforts by other companies in communications which heretofore had almost been

[8] Telephone: The First Hundred Years, John Brooms, Harper & Row, 1976.

[9] Engineering & Operations in the Bell System, Bell Laboratories, 1984.

left entirely to BTL. New ideas from other sources began to appear in ever increasing numbers in professional literature. The telephone companies were employing large numbers of college graduates, many of whom were veterans who could and did see advantages in the adoption of new technologies that had not yet made way through the integrated maze of AT&T.

This "new" generation of Operating Company people, like many parents know, became restless with AT&T's strict parental and centralized control. Ma Bell's children began to seriously question some very basic design and development decisions. In addition, Western Electric's substantial price advantages over many competitive products began to fade away.

Whether these events helped set the stage for divestiture is best left for the historians to decide.

As former president John F. Kennedy once said, "We stand today on the edge of a new frontier, a frontier of unknown opportunities and perils, a frontier of unfulfilled hopes and threats." Divestiture of the Bell System carries with it all the markings of a frontier, and like it or not, this nation has embarked into a monumental experiment unequaled in industrial history.[10]

D. Factors Motivating Change

The separation of AT&T from its telephone Operating Companies on January 1, 1984 is certainly a significant event in the history of the United States. As such, that event is a landmark with which changes in the nation's communications infrastructure can be referenced. Divestiture did not, in and of itself, cause fundamental changes in Bell Operating Company purchasing practices. To the contrary, the continuation of proven techniques was seen as an essential element to a successful

[10]G. T. Ray, op. cit.

divestiture, and there was great concern on the part of those planning divestiture that the Operating Companies could not survive without those practices.

Witness the "Plan of Reorganization" submitted to the United States District Court for the District of Columbia on December 16, 1982 by then AT&T Chairman Charles L. Brown. It envisioned that "...personnel from the Western Electric purchasing organization will be transferred to each region to augment BOC employees engaged in purchasing functions, including administration, contracting and order processing." It stated that "...copies of relevant purchasing policies, practices and procedures will be made available to regional companies, along with needed purchasing related computer systems."[11]

This was to assure that each of the operating companies would continue to be responsive to its public utility charter and would continue to safeguard the integrity of the network. It was an endorsement of the policies and practices that had long been utilized. It involved thousands of pages of written policies and practices, myriads of automated systems for generating purchase orders, assuring compliance to standards, tracking progress, testing performance, along with other intellectual properties. It may well have been the most extensive and best documented information transfer procedure in the entire corporate world.

Yet, even as that Plan was being read in Court, the practices were already being modified by factors that were under the control neither of the Court nor of the Company. These were factors that influenced the monopoly nature of the Company and the end-to-end responsibilities on which its services were built.

[11] Plan of Reorganization, December 16, 1982, pg. 375.

1. Introduction of competition.

The protection from competition which is part of the bargain between utilities and their regulators was becoming difficult to sustain in the field of communications even before the Modified Final Judgement was entered.[12]

Competition had emerged in the subscriber premises apparatus portion of AT&T's network as a result of the Carterfone decision. Manufacturers were selling directly to the end users, and a new interconnect industry had emerged to resell manufacturers' products with the added value of customized installation and service support. There were numerous suppliers of interface configurations for connecting computers and data devices to telephone lines. In addition, AT&T added confusion to the minds of some customers by partially retreating from the residential station installation and repair business, probably due to increasing costs and diminishing Public Service Commission acceptance to raise rates.

AT&T now had to compete for a portion of its retained business, offering tariffed and price controlled services in competition to products for which prices were free to follow market trends. Competitors offered a wide array of features and capabilities which AT&T had not incorporated into many of its products. In the competitive environment, redesign could not follow the carefully controlled network pace that had always assured a thoroughly reliable and compliant product. Nor could redesign be expeditiously accomplished by a single supplier. Competition in the marketplace meant that the Bell Operating Companies needed to find ways to encourage and bolster competition among their suppliers.

[12] Heritage & Destiny, Alvin Von Auw, Praeger, 1983.

There were also competitive challenges to the telephone companies intra-lata transmission networks delivered by companies who could avoid the costs inherent with a last resort partial network provider. The BOC's were offering averaged tariffed services in competition with others that were free to undercut fixed price schedules.

Indeed, there was also competition from end user customers who began linking their networks and facilities with privately owned communications networks, and then selling spare time on their networks to other users. Divestiture not only changed the infrastructure of the traditional service providers...it also substantially altered the mind-set of customers. The status quo was no longer acceptable, as the only solution, and bypass became commonplace.

The BOC's found themselves with all the obligations of a utility company--a requirement to serve all who request service normally--but without the freedom that utilities enjoyed from competitive pressure. It simply wasn't the same situation that had led to the development of conservative, quality dominated and investment oriented purchasing practices.

2. Technological change.

At the same time, the technology of telephone service was being thoroughly renovated. It was new technology that made possible the competitive thrusts that the old Bell System partners were experiencing. At the same time, new technologies made the traditional pattern of the conventional network less attractive, and changed the economics of network growth. The equal access requirements of the MFJ also eased the way for introducing new technologies.[13]

[13] To Inform or to Control: The New Communications Networks, Oswald H. and Gladys D. Ganley, McGraw-Hill, 1982.

Long before divestiture satellite and microwave technology made transmission links far less expensive to build. Computer technology made unattended remote switching centers practical, and the pair gain opportunities such centers presented made imbedded cable plant more vulnerable. Fiber optic technology cut the cost of transmission and even the cost of local loops.

Further, the material cost of the medium became insignificant when compared with the terminal and construction cost, which suggested that fiber optic transmission facilities could be installed with a potential for high capacities for about the same expense as installing it in minimal quantities. Opportunities for augmenting, rebuilding, revitalizing and even relocating the network abounded. However, they involved new technologies for which there were few practices, little reliable life cost data and a minimum of tried and proven manufacturers that had sold to the BOCs. All of these factors pushed BOC managers into technological solutions that in the prior century would have been considered as risky.

Purchasing practices which had evolved slowly with the network were cumbersome for the opportunities being presented. Thus, the purchasing policies and methods which the managers and the jurists were attempting to pass safely through the troubled waters of divestiture were already in the process of change as the result of competition and technology. It is safe to say that even if there had been no divestiture, the purchasing decisions of the Bell Operating Companies and their regional owners would be much different today than they were ten years ago. And it is safe to predict that they will be much different ten years from now than they are today, precisely because competition will increase and a much wider range of appropriate technologies, designed to greatly improve standardization procedures, will be available. Divestiture may have pulled the cork out of the bottle but, had the stopper not been released, the bottle would have exploded from its own internal pressure.

E. Responsive Purchasing Policies

The Regional Holding Companies and their Bell Operating Companies are quick to insist that they are not part of a homogeneous industry with uniform and identical material and/or service requirements--quite properly so. Each of these companies has its own managers, its own view of its future and its own strategic plan. Each also serves a distinct geographic area calling for specialized communications services. Those serving rural sections of the country can hardly have the same network needs as those serving densely populated, urban areas. Already purchasing practices are emerging which the Regional Companies seem to share in common. Some are quite new. Others are hold-overs from the past.

1. New purchasing patterns.

a) Diversity of technologies: All the Companies seem to be incorporating a broad variety of technologies into their networks. Lightwave, microwave, satellite and copper facilities exist side by side, connecting terminal points. Packet switched networks have been overlaid on the long-in-service circuit switched networks. Central office sizes are being both increased and reduced, centralized and also distributed. Intelligence is being located in the network with central offices, at adjunct processors with advanced transmission facilities and in terminal systems. This "networks of networks" pattern of technologies has emerged as the "best" way to provide telecommunications service to multiple end-user constituents. To meet the individual needs of customers the Regional Companies are like one another in their common willingness to incorporate the technologies that are being offered for applications each deems desirable.

b) Diversity of vendors: Telephone companies are now seeking multiple central office suppliers, for example, despite previously articulated penalties of multiple operating, administrative and maintenance procedures involved. They can choose from dozens of suppliers of transmission and switching equipment and perhaps many times that number of vendors of terminal products and systems. These manufacturers include well-established as well as small new organizations, built around a new technology. They include U.S. concerns, and offshore companies familiar with North American standards. Some suppliers are still in the process of adapting their world class products to North American standards.

c) Strategic alliances: The Bell Companies are entering alliances with vendors to trial, demonstrate and do initial development or marketing of new strategies. We see these alliances forming to test ISDN strategies, to utilize the rapid advances in photonics, to demonstrate packet switching services to name but three. The alliances are not exclusive, but they appear to be much more interactive and more rapidly consumated than the historical field trial approach to new equipment.[14]

These newer practices seem to suggest that the Bell Operating Companies are easier to approach than in the past, much more receptive to new vendors and therefore much more attractive and knowledgeable procurers. The change in purchasing practices appears to be still in transition. There are also factors which are retained from the past which make the Regional Holding Companies and their Bell Operating Companies demanding customers.

[14]Five manufacturers are currently demonstrating ISDN capabilities in conjunction with Bell Operating Companies. This cooperative demonstration is seen as a promising approach to long-term equipment sales.

2. Retained purchasing patterns.

a) Reliance on Bellcore: To protect themselves and their networks from the dangers of diversity, the Regional Bell Operating Companies helped create Bell Communications Research during the divestiture process for, among other things, the analysis of systems and equipment. Legally, Bellcore does not make purchase evaluations or recommendations, which means that there is no longer a single, network-wide purchasing authority. Vendors of significant core network equipment must submit to Bellcore analysis. This process can make selling to the Bell companies difficult because the prospective supplier now has to fund the cost of primary network equipment analysis activities which may not be insignificant and which may not help with sales.[15]

Some Bell Companies have expressed a view that cooperation with Bellcore may limit their creativity in designing networks truly responsive to their unique service needs, and that Bellcore analysis techniques slow their implementation of new technologies from new vendors. None are known to have yet committed to a core network product without at least allowing Bellcore a precautionary review. Whether the newly found freedom of the BOCs will alter the Bellcore process, will probably be heavily influenced by the quality of interactions between suppliers, the BOCs and their primary technological staff, Bellcore.[16]

b) Adherence to LSSGR: The Local Switching System Specification (LSSS) was originally developed by AT&T to guide the

[15] Vendor Funding--A New Approach, Digest of Technical Information, Bell Communications Research, Inc., October 1986.

[16] U.S. West, a Regional Holding Company, has publicly questioned the role of Bellcore. CommunicationsWeek, January 12, 1987.

development of network switching and to assure that systems added to the network shared common operating, signaling and control capabilities. It is now called the LATA Switching Systems General Requirements (LSSGR) document and is a most extensive publication, listing over 9,000 pages of goals and requirements, including the appropriate appendices. There is probably no switching system which completely complies with all the LSSGR requirements, and certainly the document drafters did not envision that all network improvement and expansion would stop until products emerged that were totally in compliance with the entire set of LSSGR guidelines. Nevertheless, the LSSGR serves as an analysis standard--a kind of checklist against which switching products are judged.

This document has been passed in its entirety to each of the Regions and serves as a guide to procurement. Indeed, verifying the level of LSSGR compliance through a paper review is the heart and soul of Bellcore's phase "A" analysis of switching systems. Of course, each of the operating companies is perfectly free to depart from the LSSGR and substitute other evaluation procedures that it deems appropriate. To date, the companies have no published substitute for the LSSGR. Vendors are generally required to participate in comparisons of their products with LSSGR factors. This is true even when existing products may already be in use in America in non-Bell locations or extensively deployed on a worldwide basis.

c) Extensive documentation: AT&T procurement procedures--based very properly on a natural monopoly concept--sought to provide for multitudinous conceivable contingencies under which the product might be bought and/or utilized. Vendors, therefore, submitted technical and cost information, not just for the specific order and installation for which they were bidding, but also for many other types of orders and installations for which the proposed equipment might be suitable. Quantity pricing, for example, was required for many conceivable

amounts. Engineering data was required for multiple possible installations and interfaces. This exhaustive thoroughness has been retained by some of the Bell Operating Companies.

These "holdover" practices make the individual Operating Companies look quite familiar to suppliers who were used to dealing with the AT&T of pre-divestiture days. Companies approaching the Bell Operating Companies need to come equipped with commitment and patience, for evaluations may take some time.

F. Purchasing evolution

At this point in time, the purchasing practices of the Regional Bell Operating Companies are in the process of transition. There have been changes, opening the door to new vendors, new technologies, new network configurations. The practices supporting those policies are somewhat reflective of the traditional telephone approach. Both will change, not so much as a matter of choice and convenience, but again in direct response to the realities of the new telecommunications industry. Over the next few years, we will see movement toward:

1. Worldwide standards.

By its sheer size, AT&T could create and enforce technical standards independent of CCITT standards, which are followed by most other countries. This strategy created islands of technology which fragmented what should have been a world unifying communications system. The number of national differences will certainly be corrected, since most suppliers would like to make sales in North America as well as the rest of the world. In addition, there is a cost penalty for users when multiple manufacturing procedures have to be followed in different countries. It has been estimated that it costs a manufacturer

six times more to adapt to North American switching standards than to standards in other markets.[17]

There is general agreement that the next wave of change in telecommunications networks will be toward the Integrated Services Digital Network (ISDN), integrating voice and data services on a worldwide scale. The ISDN standard will become the accepted international telecommunications standard and will replace over time individual regional or national standards, including the North American network.[18]

As this occurs, there should be less need for the Bell Operating Companies to write their own standards, or to retain practices designed to assure compliance with those standards. For vendors approaching the Bell Operating Companies, there should be less need to submit to time consuming and expensive evaluations. The effectiveness of the product or system in one network should be ample demonstration of its suitability for other network environments. In effect suppliers can be expected to provide their own analysis against published standards. The process today greatly facilitates the adoption of standards earlier in the design process than was possbile in the past.

2. Internationalization.

The practice of classifying suppliers as domestic and offshore is already an anachronism. Companies headquartered in the United States have located their manufacturing in Taiwan,

[17] European Community 1987 Report on United States Trade Barriers.

[18] Report on ISDN, CommunicationsWeek, in conjunction with Booz-Allen, Hamilton, December 15, 1986.

Korea, Mexico, Latin America, and Europe while companies headquartered in Japan, Germany, France and the United Kingdom are manufacturing in the United States. In a recent survey conducted by a leading industry publication, the nationality of the vendor company was regarded by the Bell Companies as the least significant consideration in making a purchase.[19]

At present, some companies headquartered in other nations are handicapped by a need to convert their products to North American standards and by the lack of service and/or support facilities located close to the Bell customers they are seeking to serve. But these barriers are disappearing. Many have already adopted North American standards to allow immediate sales to the Bell Companies, and the development of international standards should make this process less critical in the future. Service and support networks are being built by those organizations that do not already have them in place.

For the Bell purchasing organizations, internationalization will offer a much broader choice of vendors, and will give access to a much wider range of technologies. Because all vendors, regardless of nationality, will be addressing the same standards, purchasing procedures should tend to become broader in scope with additional closer working relationships between end users, service providers and suppliers.

Add to this the Regional Holding Company moves overseas and their needs to provide comparable products and services to international customers. This will facilitate an awareness by the BOC's as to how a given supplier's equipment is working in different environments and provide the check points necessary to evaluate vendor self-certification.

[19] Central Office Switch Study, CommunicationsWeek, April, 1987.

3. New network architecture.

The Department of Justice's Report on Competition in the Telephone Industry envisioned a new Geodesic configuration in telecommunications networks. The network was seen as building outward, connecting new components in great variety to the periphery of network rather than connecting all new components to a common center.[20]

Peter Huber, the Report's author, concluded that such a structure would require larger organizations to manage the complexity of network growth, and larger vendors of more diverse capabilities. While this conclusion is certainly debatable, there is little reason to question the basic description of the evolving network. And given the aptness of the geodesic model, opportunities for new network capabilities, delivered through new technologies and offered by additional vendors, certainly abound.

Bell Company purchasing organizations will inevitably have to deal with this diversity. As a result, greatly detailed practices which served well to protect the integrity of the old network may prove overly restrictive in implementing the new geodesic network. They will be modified, simplified and eventually replaced.

4. Non-regulated businesses.

Finally, it must be remembered that the Regional Companies are engaged in a variety of businesses that have little to do with the operation, maintenance and expansion of the public switched network. In managing their computer retail operations, their

[20] The Geodesic Network: Impact of the Huber Report, A. M. Rutkowski, Telecommunications, April 1987, pg. 38.

Yellow Pages publications, their telemarketing services and other competitive activities, they are purchasing products and services where competitive considerations are paramount. They are therefore developing purchasing policies and utilizing purchasing practices that differ with practices inherited from AT&T's network charter.

Experience with new purchasing policies and practices will ease the conversion of existing policies and practices and should speed the evolution to simplified, streamlined and more responsive methods.

G. Conclusions

The last few years have seen substantial changes in the telecommunications industry. The development of technology coupled with regulatory shifts have changed organizations, people's perceptions and the roles of many of the participants.

The impact of these technological and structural changes, more than any conscious policy decisions, will continue and even accelerate the revolution in purchasing practices which is already evident in the Bell Operating Companies. We can expect:

1. Openness to a much broader list of suppliers, both domestic and offshore to assure continuing multiple sources for products and service requirements.

2. Incorporation of a much more diverse mix of technologies.

3. Simplification of procedures for bids and proposals.

4. A reduction in requirements for technical and cost documentation and projections.

5. An increase in price competitiveness.

6. A greater emphasis in the definition, design and specification of products and increased demand for after-sale service and support.

7. The establishment of closer linkages to capable and reliable suppliers, almost a partnership.

The Bell Operating Companies will become much easier to approach and much more economical to sell to. Retaining their business will require a higher level of technical innovation and a much more demanding level of product service and support.

For better or worse, it will be an entirely different environment from that created and nurtured by the undivested AT&T purchasing organizations.